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(54) QUARTZ GLASS MATERIAL FOR OPTICAL MEMBER FOR F2 EXCIMER LASER, AND OPTICAL MEMBER

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a material having a high light transmittance at an oscillation wavelength of an F2 excimer laser by respectively specifying the OH group concentration, F concentration and H concentration.

SOLUTION: This material is obtained by regulating the OH group concentration to ≤5 ppm, the F concentration to 0.1-2 mol% and the H concentration to ≤5 × 1016 molecules/cm3. The material is further excellent in laser resistance to irradiation with an F2 excimer laser. The material preferably has ≥70% internal transmittance at 157 nm which is the F2 excimer laser oscillation wavelength and/or ≥90% internal transmittance at 163 nm and/or ≤5% lowering of transmittance at 157 nm wavelength based on 10 mm after irradiation of 3 × 105 pulses of the F2 excimer laser at 10 mJ/cm2 energy density per pulse and/or ≤2 × 10-5 difference n between the maximum value and the minimum value of the refractive index and/or ≤0.5 nm/cm amount of refractive index when making measurement at 633 nm wavelength. Thereby, the resultant material is useful for a lens a window, etc., for transmitting the F2 excimer laser.

LEGAL STATUS

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